

Appl. No. 10/750,059
Amdt. dated Mar. 31, 2006
Reply to Office action of Feb. 14, 2006

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (currently amended) An interconnect structure comprising:
a substrate;
a conductive contact pad having a first elastic modulus, disposed over a portion of the substrate surface, having an inner portion and an outer portion, the outer portion of the conductive contact pad completely surrounding the inner portion of the conductive pad ;
a compliant layer having a second elastic modulus lower than the first elastic modulus, disposed directly under the inner portion of the contact pad but not under the outer portion of the contact pad;
the inner portion of the contact pad over the compliant layer having a thickness thinner than the thickness of the outer portion of the contact pad; and
an insulative mask disposed over the contact pad including an opening that exposes a portion of the inner portion of the contact pad.
2. (canceled)
3. (previously presented) The interconnect structure of claim 1, in which the contact pad comprises a conductive metal and the compliant layer comprises a metal.
4. (previously presented) The interconnect structure of claim 1, in which the contact pad comprises copper and the compliant layer comprises a material having an elastic modulus lower than the elastic modulus of copper.
5. (canceled)

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6. (currently amended) The interconnect structure of claim ~~[[5]]~~ 1, in which the compliant layer has pores, apertures, and voids.

7. (canceled)

8. (previously presented) The interconnect structure of claim 1, in which the inner portion of the contact pad is more flexible than the outer portion.

9. (previously presented) The interconnect structure of claim 1, in which the opening uncovers a substantially planar contact surface.

10. (previously presented) The interconnect structure of claim 1 further including a solder contact attached to the contact surface, the solder contact including a contact portion defined by the opening of the insulative mask.

11. (previously presented) The interconnect structure of claim 10, in which the thickness of the compliant layer is greater than the thickness of the outer portion of the contact pad.

12-27. (canceled)

28. (currently amended) The interconnect structure of claim ~~[[2]]~~ 1, in which the contact pad comprises a conductive metal and the compliant layer comprises a polymer.

29. (currently amended) The interconnect structure of claim ~~[[2]]~~ 1, in which the contact pad comprises a conductive metal and the compliant layer comprises a dielectric material.

30. (new) A semiconductor device comprising:

a substrate;

a conductive contact pad having a first elastic modulus, disposed over the substrate surface, having an inner portion and an outer portion,

the inner portion having a first thickness, the outer portion having a second thickness greater than the first thickness and enclosing the inner portion;

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a compliant layer having a second elastic modulus lower than the first elastic modulus, disposed directly under the contact pad, covered by the inner portion of the contact pad and contacting the outer portion of the contact pad.

31. (new) The semiconductor device of claim 30, in which the inner portion and the outer portion of the contact pad are co-planar.

32. (new) The semiconductor device of claim 30, in which the outer portion has a first bottom surface, the compliant layer has a second bottom surface, and the first and the second bottom surfaces are co-planar.

33. (new) The semiconductor device of claim 30, in which the compliant layer has a thickness greater than the second thickness.